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IoT training - State of the art of the internet of connected objects

2 days (14 hours)

Presentation

The Internet of Things (IoT) is a system of computing devices with unique identifiers (UIDs), capable of transferring data over a network without human interaction or human-computer interaction. The Internet of Things is helping to improve our standard of living. Thanks to this system, we can live more intelligently. One example is the reduction in energy consumption, which is good for the environment and the economy. It gives companies a real-time view of how their systems are working, from machine performance to logistics and the supply chain. The IoT enables companies to automate their processes to reduce costs. It also reduces waste and improves service delivery, making the manufacture and delivery of goods less costly, while offering transparency on customer transactions. Our IoT - State of the Art training course will teach you the concept of IoT, its architecture, data management and analysis, and communication protocols.

At the end of this course, you'll be able to grasp the main aspects of the IoT, including concrete application areas and associated technologies.

Objectives

- Understanding the notion of IoT (Internet of Things) or connected objects
- Mastering uses and associated technologies
- Learn about the technological innovations and business opportunities brought by the IoT
- Apply current IoT norms and standards
- Apply and anticipate IoT integration in your organization

Target audience

Anyone involved in a project related to connected objects:

- Project Manager
- Consultants
- IT managers
- IT Department staff

Prerequisites

- Basic computer literacy
- Technical knowledge is not required

IoT training program - State of the art

Introduction

- IoT concept and definition
- Different types of IoT
- Operating principle
- Technologies used
- Fields of application
- Device properties
- IoT ecosystem

Architecture of the Internet of Things

- IoT solution architecture models
- How is the IoT transforming businesses?
- Main IoT cards on the market
- Discover Raspberry Pi

Resource management

- Programming frameworks for the Internet of Things
- Virtualization on embedded boards
- MicroVM for cloud-assisted cyber-physical systems
- IoT flow processing

Data management and analysis

- Distributed data analysis

- Linking data to sources of corporate value creation
- RGPD and personal data
- Limits of relational DBMSs and parallel DBMSs
- Data-parallel programming model :
  - MapReduce
  - Hadoop
  - HDFS
- Data analysis requirements :
  - Introducing Mahout

Communication protocols

- Different IoT networking protocols
- Developing IoT solutions with IoT protocols
- Wireless communication types
- Main short-range wireless communication devices
  - Bluetooth
  - WIFI
  - ZigBee
  - 6LoWPAN
- Comparing these devices
- Different types of applications: industrial, building, domestic, etc.

Security

- Security and confidentiality
- Safety basics
- IoT security framework
- Network privacy
- Basic principles of robustness and reliability
- IoT governance
- Diversification for IoT security

IoT applications

- Introduction to IoT applications
- Applied IoT
- Vehicle Internet and applications
- Intelligent, cloud-based facility management
- IoT market
- 2G/4G mobile network architectures for IoT

Companies concerned

This course is aimed at both individuals and companies, large or small,

wishing to train its teams in a new advanced IT technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.